STUDIES IN SOUTH INDIAN HEPATICAE* 4. *LEUCOLEJEUNEA XANTHOCARPA* (LEHM. *ET* LINDENB.) EVANS —NEW TO INDIAN FLORA

Evans (1907) first established *Leucolejeunea* as a new genus of Hepaticae and separated it from *Archilejeunea* on the basis of the male inflorescence. Although the two genera are alike in appearance including the entire underleaf but they differ in the structure and number of oil-bodies, the structure of sporophyte and the colour of plant. Verdoorn (1934) transferred *Archilejeunea japonica* to *Leucolejeunea japonica* on the basis of male inflorescence. Many earlier workers placed it in the sub-family Ptychanthoideae because of the undivided underleaves, its stem anatomy (10-15 cortical cells) and male and female bracteoles. It has been placed now under the sub-family Lejeuneoideae because this genus shares many important characters of this sub-family, *i.e.*, typical *Lejeunea* type structure of sets which shows 12 cortical and 4 medullary cells, male inflorescence, the structure of perianth, the oil-bodies type and the leaf lobule. In sharing the characters of both sub-families the genus acquires an intermediate status between Ptychanthoideae and Lejeuneoideae.

Leucolejeunea xanthocarpa has a reported range of Japan, Ceylon, Formosa, China, Java, Borneo, Celebes, North and South America and Africa. The plant listed in the Indian census by Parihar (1961-62) as distributed in "India Orientalis" (obviously drawn from Stephani's Species Hepaticarum) does not refer to its distribution from India but from some East Indies Islands. This species is now being authentically reported for the first time from India and relevant details are given below since it is a very rare plant and represented by a single species in the country.

The plants of *Leucolejeunea xanthocarpa* were growing in moist shaded place on the bark of trees in Kodaikanal (Palni Hills), South India and were collected by Mr. K. P. Singh during December and January, 1970-71. The specimens have been deposited in the Hepatic Herbarium, Botany Department, Lucknow University, Lucknow.

The oil-bodies (*see* also Udar & Nath, 1971) were investigated in the living plants after soaking them in cold water for 8-10 hours to ensure maximum stretching of tissues.

Leucolejeunea xanthocarpa (Lehm. *et* Lindenb.) Evans in Torreya, 7: 229. 1907. *Jungermannia xanthocarpa* Lehm. *et* Lindenb. Pugillus Plant. 5: 8. 1833. *Lejeunea xanthocarpa* (L. *et* L.) Gott., Lindenb. et Nees, Synop. Hepat. 330. 1845. *L.* subgen. *Archilejeunea xanthocarpa* (L. *et* L.) Pears., Krist. Vid. Selsk. Forhandl. 9: 4. 1887. *Archilejeunea xanthocarpa* (L. *et* L.) Schiffn., Conspect. Hepat. Archip. Indici, 316. 1898.

Epiphytic, on the bark of the trees, robust, creeping plants, pale when living, brownish when dead, about 12-20 mm long. Main stem 0.1-0.12 mm in diameter, cortical cells 12-15 and medullary cells 20-22, the latter slightly smaller than cortical cells. Branching ventral. Leaves incubous, imbricate, lobe entire, oval, concave; 0.8-1.2 mm long and 0.7-0.8 mm broad, lobule inflated up to the apex of the leaf lobe, second tooth of leaf-lobule with a single projecting cell, cell wall of the leaf cells uniformly thin-walled and slightly trigonous, basal cells

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*Part 1 on *Trichocolea tomentella* (Ehrb.) Dumort. and *Notoscyphus lutescens* (Lehm. *et* Lindenb.) Mitt., Part 2 on *Herberta* Gray in *J. Bombay nat. Hist. Soc.* (in press) and Part 3 on *Cephalozia siamensis* Kitagawa in *Bull. bot. Surv. India* 15 (1 & 2) : 1973.

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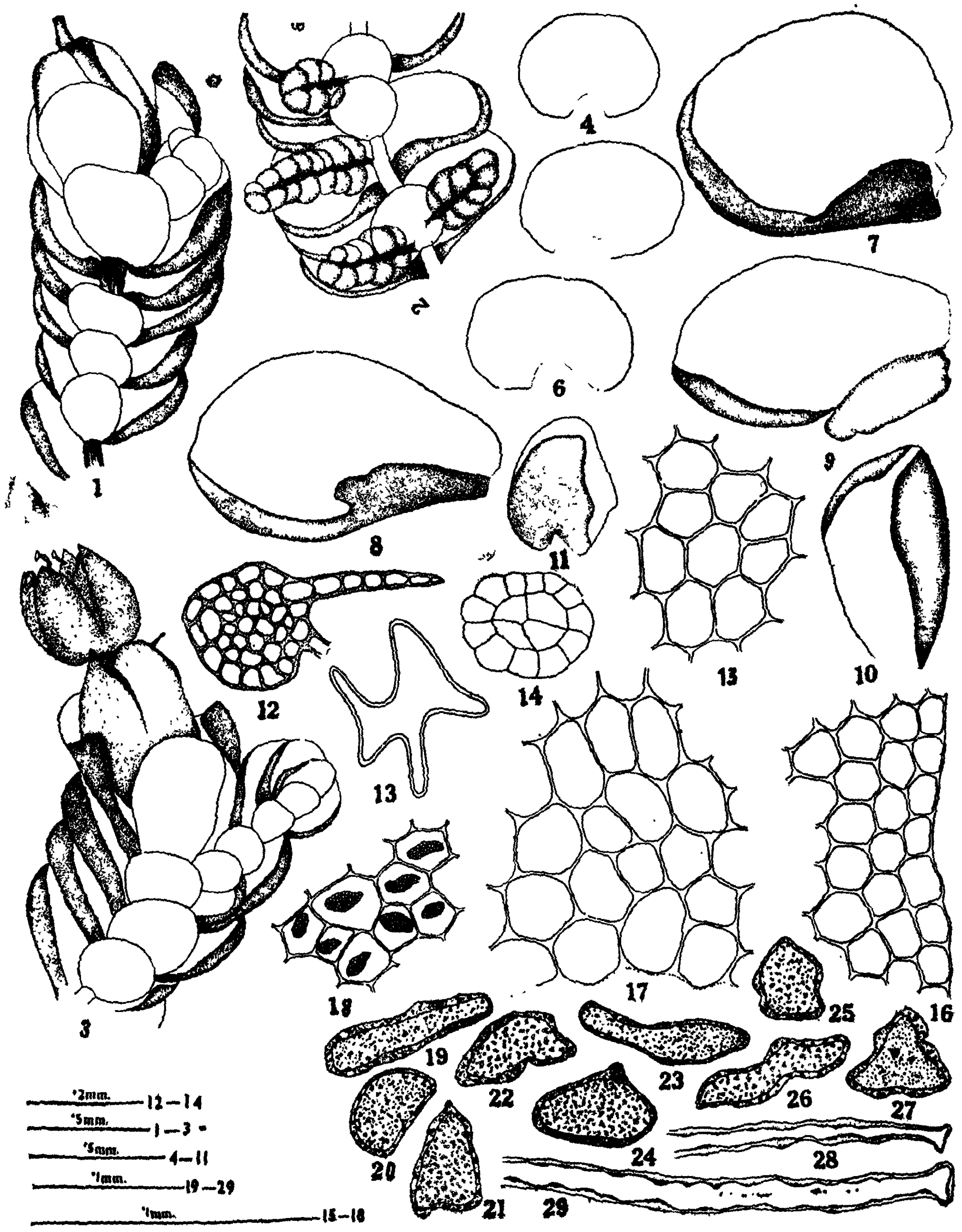
12.21-20.35 μ long and 10.17-12.21 μ broad, median cells 8.14-16.28 μ long and 8.14-10.17 μ broad and marginal cells 5.08-12.21 μ long and 4.07-8.14 μ broad, rectangular or square in shape. Amphigastria entire, reniform, 0.3-0.45 mm long and 0.5-0.6 mm



Leucolejeunea xanthocarpa (Lehm. *et* Lindenb.) Evans

Figs. 1-29 : 1. Ventral view of a perianth bearing shoot. 2. A part of a male plant. 3. A part of a female plant showing dehisced capsule. 4-6. Underleaves. 7-8. Leaf lobes. 9. Female bract. 10. Female bracteole. 11. Male bract. 12. T. S. of stem. 13. T. S. of perianth. 14. T. S. of seta. 15. Median leaf cells. 16. Marginal leaf cells. 17. Basal leaf cells. 18. Leaf cells showing oil-bodies. 19-27. Spores. 28-29. Elaters.

broad (broader than long), oil-bodies usually 1, rarely 2, very large in each cell of the leaf, usually spindle to elliptical shaped, about 8.1-10.15 μ long and 4.0-4.8 μ broad, irregular in outline containing conspicuous granules.

Autoicous. Male inflorescence on a short lateral branch, perigonial leaves 3-8 pairs, imbricate, oval. Female inflorescence on a short lateral intercalary branch, bracts in one pair, larger than vegetative leaves, apex rounded entire, 0.9-1.0 mm long and 0.6-0.65 mm broad, bracteoles entire, larger than underleaf, 0.85-0.9 mm long and 0.5-0.55 mm broad. Perianth pyriform with a rostrum at the apex, 5-keeled, enclosing the sporophyte. Mature sporophyte with a cylindrical to ovoid capsule with a short seta and foot. Capsule wall bistratose, cell walls of the outer layer thickened and irregularly sinuate, hyaline in colour, dehiscence by 4 valves. Seta in cross section with 12 outer and 4 inner cells. Spores of variable shape and size, 40.70-101.75 μ long and 16.28-40.28 μ broad, yellowish to brownish in colour, densely papillose. Elaters few in a capsule, hyaline with 1 nondistinct spiral band, 223.85-268.62 μ long and 20.35-24.42 μ broad.

DISCUSSION

The collected material is *Leucolejeunea xanthocarpa* due to its characteristic features of one or two large "grape cluster" type oil-bodies, completely entire and reniform underleaf, strongly involute leaf margin up to the apex of the leaf lobe and autoicous inflorescence. This plant also approaches the Japanese species *L. paroica* in appearance but differs from it in the presence of 2-3 small oil-bodies per leaf cell, paroicous male inflorescence and leaf lobes not involute. Affinities also occur with *L. japonica* but in the latter the leaf lobes are involute only at apex and second tooth of leaf lobule is 2-6 cells long. This species also shows close resemblance to a South African species *L. capensis* but differs in the length of the rostrum of the perianth which is twice as long in the South African species.

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A NEW SPECIES OF *MAESA* (MYRSINACEAE) FROM NAGALAND (INDIA)

Maesa wardii Nayar et Giri, sp. nov. Affinis *M. kurzii* Mez, sed inflorescentiis majoribus laxibusque petiolo quadruplo longioribus, floribus majoris, bracteis pedicello brevioribus differt.

Frutex. Rami lignosi, subtereti, hirsuti vel pilosi. Folia elliptico-oblonga vel elliptica, 7-15 cm longa, 5-10 cm lata, basi subrotundata, apice obtusa, margine valde dentata, supra glabra, nitida, subtus initio ad

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